

WHAT IS CLAIMED IS:

1. A method for inspection of a roll of web material through a web inspection system comprising:
  - inspecting the roll of web material to determine the number, type and
  - 5 location of one or more detectable defects along the web material
  - outputting a data "object" representation of the roll map; and
  - certifying the accuracy of the roll map object representation of the inspected web material to be within a predetermined range of tolerances.
- 10 2. The method according to claim 1, further including:
  - before said certifying, performing a self-diagnostic test on said inspection system to determine the performance of the web inspection by the inspection system.
- 15 3. The method according to claim 2 wherein,
  - said performing a self-diagnostic test includes measuring or retrieving certification data applied during said inspection; and
  - comparing the applied certification data to standardized certification data to determine whether the applied certification data was within the
  - 20 predetermined range of tolerances.
4. The method according to claim 3 wherein,
  - said performing a self-diagnostic test includes performing a System Integrity Test measuring performance and calibration of predetermined
  - 25 components the web inspection system.
5. The method according to claim 4 wherein,

said performing a self-diagnostic test further includes performing a Product Calibration Test measuring the application of product set-up parameters for the particular web material inspected.

- 5 6. The method according to claim 3 wherein,  
said certification data includes System Integrity Test Data relating to the calibration and operation of predetermined components of the web inspection system, and Product Calibration Test Data reviewing the product set-up parameters applied for the particular web material inspected.

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7. The method according to claim 2 wherein,  
said performing a self-diagnostic test includes measuring or retrieving certification data applied during said inspection.

- 15 8. The method according to claim 1 wherein,  
said certifying includes generating a digital Product Inspection Certificate containing and certifying the object representation of the roll map.

- 20 9. The method according to claim 8, wherein  
said certifying further includes generating a digital signature with the Product Inspection Certificate.

10. A method for certifying an inspection of a roll of web material  
25 through a web inspection system comprising:

calibrating the web inspection system to conform to predetermined certification data for the roll of web material to be inspected;

inspecting the roll of a web material for one or more defects, if any, through the web inspection system;

detecting at least one of the one or more defects through the web inspection system;

determining the location of the at least one detected defect, relative the roll of web material, through fiduciary indicators placed along the web material;

recording the detection of the at least one detected defect, and its location relative the roll of web material on a recording medium to create a roll map;

measuring the actual certification data of the web inspection system;

10 comparing the actual certification data to the predetermined certification data for the roll of web material; and

certifying the accuracy of the roll map of the inspected web material when the actual certification data is within a predetermined tolerance of the predetermined certification data.

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11. The method according to claim 10 wherein,

said certification data includes System Integrity Test Data of predetermined components of the web inspection system, and

said measuring includes performing a self diagnostic test on said predetermined components to generate the actual certification data.

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12. The method according to claim 11 wherein,

said performing a Self-Diagnostic Test is performed periodically within a predetermined time interval.

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13. The method according to claim 12, further including:

time stamping the performance of the Self-Diagnostic Test.

14. The method according to claim 11 wherein,

said performing a Self-Diagnostic Test is performed before each web inspection run.

15. The method according to claim 11 wherein,  
5 said predetermined components include the vision hardware of the web inspection system.

16. The method according to claim 15 wherein,  
said vision hardware includes at least one of the cameras, lenses and  
10 light sources.

17. The method according to claim 16 wherein,  
said System Integrity Test Data includes at least one of the camera alignment, the lens focus and the light source alignment.  
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18. The method according to claim 11 wherein,  
said certification data further includes Product Calibration Data corresponding to the particular web material being inspected, and  
said measuring includes determining what inspection set-up  
20 parameters were employed during the web inspection, and that they have not been altered.

19. The method according to claim 18 wherein,  
said system inspection parameters include the desired level of flaw  
25 detection.

20. The method according to claim 18 further including:  
providing said inspection parameters by a customer.

21. The method according to claim 10, further including:  
time stamping the current measuring the actual certification data.
22. The method according to claim 10, wherein  
5 said certifying includes generating a Product Inspection Certificate  
including the actual certification data, the predetermined certification data,  
and the roll map.
23. The method according to claim 10, wherein  
10 said certifying further includes generating a digital signature with the  
certification report.
24. The method according to claim 10, further including:  
determining the cause of the at least one detected defect.
- 15 25. The method according to claim 24, wherein  
said determining the cause includes comparing the measured defect  
data of the at least one detected defect with existing defect data of a process-  
control database.
- 20 26. The method according to claim 10, further including:  
re-inspecting the roll of web material through the same web  
inspection system or an independent second web inspection system to verify  
the certification by detecting the at least one of the one or more defects.  
25 through the web inspection system;
27. The method according to claim 26, wherein  
said re-inspecting the roll further includes:

determining the location of the at least one detected defect, relative the roll of web material, through fiduciary indicators placed along the web material;

5 recording the detection of the at least one detected defect, and its location relative the roll of web material on a recording medium to create a roll map;

measuring the actual certification data of the web inspection system;

10 comparing the measured actual certification data to the predetermined certification data for the roll of web material; and

recertifying the accuracy of the second roll map of the inspected web material when the secondly measured actual certification data is within the predetermined tolerance of the predetermined certification data.

15 28. The method according to claim 27, wherein said fiduciary indicators are provided by placing fiduciary marks along said roll of web material.

20 29. The method according to claim 28, wherein said placing fiduciary marks is performed during the first indicated inspection of said roll of web material.

30. The method according to claim 29, wherein said fiduciary marks are placed along an edge of the web material.

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31. The method according to claim 26, wherein said re-inspection is performed on the roll of web material in an opposite direction of the first indicated web inspection.

32. The method according to claim 26, further including:

5 verifying the location of the at least one or more defects by comparing the determined the location of the at least one detected defect, relative the roll of web material, relative the fiduciary indicators of the first inspection to the placed along the web material to the determined the location of the at least one detected defect, relative the roll of web material, relative the fiduciary indicators during the re-inspection thereof.

33. The method according to claim 26, further including:

10 determining said fiduciary indicators by the detection of the one or more defects along said roll of web material.

34. A web inspection certification system to certify an inspection a roll of web material through a web inspection system comprising:

15 a web inspection system adapted to inspect the roll of web material applying certification data relating to web inspection system and the particular web material to detect at least one or more defects, if any, therein;

a diagnostic device adapted to measure or retrieve the actual certification data of the web inspection system applied or to be applied  
20 during said web inspection corresponding to the particular web material being inspected; and

a certifying device adapted to certify the accuracy of the data "object" representation of a roll map of the inspected web material when the applied certification data conforms, within a predetermined tolerance, to  
25 standardized certification data for the roll of web material.

35. The system according to claim 34 wherein,

said applied certification data includes System Integrity Test Data of predetermined components of the web inspection system.

36. The system according to claim 35 wherein,  
said predetermined components include the vision hardware of the  
web inspection system.

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37. The system according to claim 36 wherein,  
said vision hardware includes at least one of the cameras, the lenses,  
and the light source.

10 38. The system according to claim 37 wherein,  
said System Integrity Data include at least one of the camera  
alignment, the lens focus and the light source alignment.

39. The system according to claim 34, further including:  
15 a time stamp device to time stamp the occurrence of a Self-  
Diagnostic Test performed by the diagnostic device.

40. The system according to claim 35 wherein,  
said actual certification data further includes Product Calibration  
20 Data corresponding to the particular web material being inspected to certify  
which product set-up parameters were employed during the web inspection,  
and that they have not been altered.

41. The system according to claim 40 wherein,  
25 said system inspection parameters include the desired level of flaw  
detection.

42. The system according to claim 34, wherein



said certifying device is configured to generate a Product Inspection Certificate including the actual certification data, the predetermined certification data, and the roll map.

- 5 43. The system according to claim 42, wherein  
said certifying device is further adapted to generate a digital signature  
with the Product Inspection Certificate.

44. The system according to claim 34, further including:  
10 a defect analysis device configured to determine the cause of a  
detected defect by comparing the measured defect data of the at least one  
detected defect with existing defect data of a process-control database.

45. The system according to claim 34, further including:  
15 a location analysis device configured to determine the location of the  
at least one detected defect, relative the roll of web material, through  
fiduciary indicators placed along the web material; and  
a recording device configured to record the detection of the at least  
one detected defect, and its location relative the roll of web material create  
20 the roll map thereof.

46. The system according to claim 45, wherein  
said fiduciary indicators include spaced-apart fiduciary marks placed  
along said roll of web material.

- 25 47. The system according to claim 46, wherein  
said fiduciary marks are spaced-apart along an edge of the web  
material.

48. The system according to claim 45, wherein:  
said fiduciary indicators include the detected one or more defects  
relative their placement along said roll of web material.

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